

REMARKS

Claims 1-59 and 64-68 are pending. By this Amendment, the title is amended; the specification is amended; claims 60-63 are canceled without prejudice or disclaimer; and claims 8, 24, 45 and 46 are amended. Reconsideration in view of the above amendments and following remarks is respectfully requested.

The title was objected to. The title has been amended in accordance with the suggestion of the Office Action. Reconsideration and withdrawal of the objection to the title are respectfully requested.

Claim 46 was rejected under 35 U.S.C. §112, second paragraph. Claim 46 has been amended to obviate the rejection. Reconsideration and withdrawal of the rejection of claim 46 are respectfully requested.

Claims 1, 2, 5-7, 50, 53, 56, 60 and 61 were rejected under 35 U.S.C. §102(b) over Wessner et al. (U.S. Patent 5,047,651) and claims 3, 4, 51, 52, 54, 55 and 57-59 were rejected under 35 U.S.C. §103(a) over Wessner et al. The rejections are respectfully traversed.

Claim 1 recites a method of device inspection including providing an asymmetric marker on a device to be inspected, the form of an asymmetry of the marker being dependent upon the parameter to be inspected. The method further includes directing light at the marker, obtaining a first measurement of a position of the marker via detection of diffracted light of a particular wavelength or diffraction angle, obtaining a second measurement of the position via detection of diffracted light of a different wavelength or diffraction angle, and comparing the first and second measured positions to determine a shift indicative of the degree of asymmetry of the marker.

The Examiner on page 5, line 4, of the Office Action alleges that Wessner et al. disclose an asymmetric marker, which the Examiner alleges corresponds to the marking track 17 and the additional markings 29. It is respectfully submitted, however, that neither of these markings, either alone or in combination, correspond to the claimed asymmetric marker.

As disclosed, for example, in column 4, lines 3-11, the two diffraction grating tracks 19 and 20 of the marking track 17 have the same symmetrical relief profile with the same grating frequency. As further disclosed by Wessner et al., the advantage of symmetrical grating tracks is the inexpensive production of an embossing matrix for the marking track 17.

As even further disclosed, for example, in column 9, lines 13-16, the two diffraction gratings 19' and 20' of the additional markings 29 differ from the diffraction gratings 19 and 20 of the marking track 17 only in regard to the grating frequency. There is no disclosure or

suggestion, however, that the grating tracks 19' and 20' of the additional markings 29 are asymmetric with respect to each other, or asymmetric with respect to the grating tracks 19 and 20 of the marking track 17.

With respect to the Examiner's position that the difference signal D is indicative of the asymmetry of the markings 17 and 29, it is respectfully noted that the difference signal D is disclosed in column 5, lines 59-64, to be indicative of the difference in the intensity of illumination of the light spot 6 and the level of efficiency of the diffraction gratings. The difference signal D is not indicative of any asymmetry of the markings 17 and 29.

As Wessner et al. do not disclose or suggest all the features of claim 1, Wessner et al. cannot anticipate or render obvious claim 1.

Claims 2-7 and 20-55 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

Claims 56 recites a device inspection apparatus including, *inter alia*, a metrology unit configured to compare measured positions of an asymmetry marker to determine a shift indicative of the degree of asymmetry of the marker.

As discussed above, Wessner et al. do not disclose or suggest an asymmetric marker and the difference signal D is not indicative of a degree of asymmetry of the markings 17 and 29. Accordingly, Wessner et al. cannot anticipate or render obvious claim 56.

Claims 57-59 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 56 and for the additional features recited therein.

With respect to the Examiner's conclusion on page 6, line 2, that the diffracted light of Wessner et al. inherently includes different wavelengths, it is respectfully submitted that the Examiner has not provided any basis in fact and/or technical reasoning, as required by MPEP §2112, to support the conclusion that Wessner et al. necessarily include different wavelengths in the diffracted light.

With respect to the Examiner's backup position that if the diffracted light of Wessner et al. does not include different wavelengths, that it would have been obvious to modify Wessner et al. to include wavelengths in the diffracted light, it is respectfully submitted that such a modification would not have been obvious to one of ordinary skill in the art. As disclosed in column 3, line 54-column 4, line 2, the tracking sensor 1 of Wessner et al. is designed to detect only the first and second diffraction angles α and β of the diffracted light 23 and the two diffraction gratings 19 and 20 of the marking track 17 advantageously differ

only in respect of their respective azimuth angles Φ_1 and Φ_2 . As Wessner et al. disclose that it is advantageous that the only difference in the grating tracks 19 and 20 is their respective azimuth angles, it would not have been obvious to one of ordinary skill in the art to include light of different wavelengths.

With respect to the Examiner's allegation regarding claims 57-79, it is respectfully submitted that Wessner et al. are clearly non-analogous prior art. *See* MPEP §2141.01(a). The tracking sensor 1 of Wessner et al. for detecting the edge of a web 5 is clearly not in Applicants' field of endeavor, photolithography and device inspection, nor is it reasonably pertinent to the particular problem with which Applicants were concerned, detection of overlay error between layers of a device.

Reconsideration and withdrawal of the rejections over Wessner et al. are respectfully requested.

Applicants appreciate the indication that claims 8-49 and 64-68 define patentable subject matter. However, in view of the above amendments and remarks, Applicants respectfully submit that all claims are allowable and that the entire application is in condition for allowance.

Should the Examiner believe that anything further is desirable to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

PILLSBURY WINTHROP SHAW PITTMAN LLP



John P. Darling
Reg. No. 44,482
Tel. No. 703.770.7745
Fax No. 703.770.7901

JPD
P.O. Box 10500
McLean, VA 22102
Tel. No. 703.770.7900